DOCUMENT RESUME

ED 110 560 UD 015 374

TITLE "Executive Summary of the 1973-74 Michigan Cost Effectiveness Study."

INSTITUTION Education Turnkey Systems, Inc., Washington, D.C.; Michigan State Dept. of Education, Lansing. Research, Evaluation, and Assessment Services.

PUB DATE 5 Mar 75
NOTE 21p.; Best copy available

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS Compensatory Education; *Compensatory Education Programs; *Cost Effectiveness; Costs; Educational Accountability; Educationally Disadvantaged; Efficiency; Evaluation Methods; Expenditures; Program Content; Program Costs; Program Descriptions; *Program Effectiveness; Program Evaluation; Reading; *Reading Programs; Resource Allocations; Systems Analysis
IDENTIFIERS Michigan

ABSTRACT

This summary of the 1973-74 Michigan Cost-Effectiveness Study describes the results of an exploratory inquiry into compensatory education reading programs in forty-eight Michigan schools. The study is said to have as its purpose the development and implementation of evaluation techniques to determine what educational practices bring about changes in students' behavior and what costs are associated with these. On site visits to each of the schools provided measures of program characteristics, including cost data. Analysis of the data included a comparison of program characteristics with 1972-73 and 1973-74 student reading achievement. "Controllable" program characteristics, said to describe the difference between effective and non-effective compensatory reading programs, are indicated. These are a set of controllable factors related to student reading achievement and pertaining to school administrators and teachers, and those denoting that, when other things were equal and up to a point, more dollars per student means more achievement per student. Continuation of the program for 1974-75 is suggested with the following foci: identification of new variables that relate to achievement; extension of relationships between cost and achievement; and, investigation of the direction of the relationship between achievement and the various identified variables. (Author/AM)

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GENERAL INFORMATION SHEET

Enclosed is a copy of the report sent to the State Board of Education entitled "Executive Summary of the 1973-74 Michigan Cost Effectiveness Study". As you will note, the Summary is dated February 25th, having been prepared by the Division Research, Evaluation, and Assessment, Michigan Department of Education several months prior to that date. Hence, this Summary reflects a condensation of the September 30th Report submitted by Education TURNKEY Systems to the MDE, and does not include much analysis and re-analysis conducted by both the MDE and Education TURNKEY Systems after December 1974. Since the discussion of the report on March 5th included the release of the results of subsequent analysis and re-analysis, a press release highlighting some of the major subsequent findings is also included.

For additional information, it is recommended that interested parties contact either Dr. Michael Hunter, Division Research Evaluation & Assessment, Michigan Department of Education, Lansing, Michigan (517) 373-1830; or Mr. Charles Blaschke, Education TURNKEY Systems, Inc., 1660 L Street, N. W., Washington, D. C., 20036, (202) 293-5950.

Enclosure

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FOR DISCUSSION ONLY

Statement By:
MICHIGAN DEPARTMENT OF EDUCATION
EDUCATION TURNKEY SYSTEMS, INC.

Regarding:
MICHIGAN DEPARTMENT OF EDUCATION
RELEASE OF RESULTS OF
COMPENSATORY EDUCATION COST-EFFECTIVENESS STUDY

(5 MARCH, 1975)
DURING BOARD MEETING

Too often, education research and evaluation efforts "recommend further" study and analysis to continue searching for elusive variables which might explain differences in student outcomes. In this case, the opposite is true. The results of this exploratory study must be extended for cross-validation purposes because of the large number of statistically significant variables which have been identified as characteristic of successful comp-ed reading programs, and the serious challenges to assertions that schools do not affect student achievement. Yet, with guarded caution and optimism, we feel strongly that the evidence presented in our September 30th report and the March 5th summary report to the Michigan State Board of Education:

- refutes the thesis that schools don't make a difference in student performance, while identifying specific variables (and their respective costs) which do appear to make a difference.
- establishes a new methodology for identifying the impact of schools and resources on students performance.
- corroborates the observation of experienced administrators and teaching staff that classroom management and decision-making variables at the building level are critical to program success.

- Indicates that there are variables which make a difference and are controllable by local district policy makers.

The major limitation to the generalizeability of the study's findings to a national audience could be the unique leadership and priorities of the Michigan Department of Education and the ingenuity and perseverance of Michigan comp-ed district staff at the local level. The policy implications of this study are significant indeed, at local, state, and federal levels; yet as noted below, they are tentative, pending further, indepth analysis of the data to confirm the findings, a rather awesome responsibility in light of the study's implications.

First, while not identifying specific causal relationships, the study does indicate that some schools (programs) in Michigan do make a difference and the characteristics of these schools are in many instances very significant.

Second, the factors which appear to discriminate, if not account for, the difference between effective and non-effective comp-ed programs, are for the most part "controllable" by local district staff, and are usually those at the building level:

- The classroom monitoring role of the principal and how he allocates his time and delegates decision-making over certain factors to the classroom teachers.
- The role of teachers, the degree of decision-making delegated to them, and the amount of time the teachers allocate to instruction management activities including diagnosis and prescription, and the development of performance objectives for individual students.

- The nature and extent of coordination among building staff, especially between the comp-ed teacher and the regular teachers.
- The amount of time allocated by the comp-ed director and teachers to planning and pre-service training.

While further analysis will undoubtedly provide more insights, district staff now have some useful information on implicit actions/initiatives which can be used to improve their programs.

Third, the implications for funding allocation to comp-ed programs are difficult to assess without further analysis. It is clear that a large amount of resources (e.g., nearly $670/pupil in comp-ed reading in all study programs) are allocated to comp-ed reading programs, perhaps relatively more than in other states, though comparable data are not truly available since other states have not used the cost methodology used here. Moreover, successful programs allocate more than do not-so-successful ones (i.e., $742 in high vs $587 in low per pupil). And the amount of resources allocated to comp-ed reading are highly correlated to student reading achievement, by itself explaining over 30% of the observed variance in this achievement. And finally, other things being equal and up to a point, more resources allocated per student to reading means more achievement per student.

While on the surface, it appears that Title I programs allocate more resources than Chapter 3 (i.e., the state-funded $22.5 million student performance pact program) some of the differences could be related to the nature of guidelines, its history, or the different types of incentives available to the districts.

In terms of the composition of comp-ed resource utilization, one specific implication arises: the factors or variables which characterize the differences cost few additional marginal dollars; rather they reflect different allocation of existing staff time of building personnel.

As future analyses and re-analyses of the existing data are conducted over the next few months and cross-validations using 1974-75 data occur, policy implications will be addressed with greater specificity. However, this study involving 48 districts conducted by the Michigan Department of Education and Education Turnkey Systems, Inc. corroborates the recent findings of other recent studies (Federal Reserve Board, Philadelphia, 1975 and State of New York, Governor's Office, 1974), thus providing some direction, if not supportive data, for education policy makers at federal, state, and local levels.

MICHIGAN DEPARTMENT OF EDUCATION

MEMORANDUM

TO: Members of State Board of Education DATE: February 25, 1975

FROM: John W. Porter

SUBJECT: Information on Compensatory Education Cost-Effectiveness Study

On November 6, 1973 the State Board of Education approved a contract between the Department and Education Turnkey Systems, Inc. for the purpose of conducting the 1973-74 Michigan Cost-Effectiveness Study. The purpose of the study was to continue development and begin implementation of cost-effectiveness procedures developed by Department staff.

The study focused on compensatory education reading programs. Forty-eight schools were selected. Measures of program characteristics, including cost data, were obtained during on-site visits to each of the schools. The various analyses included the comparison of program characteristics to both 1972-73 and 1973-74 student reading achievement.

Without identifying specific causal relationships, the study indicates that some program characteristics are systematically related to student reading achievement. These characteristics which appear to describe the differences between effective and noneffective compensatory reading programs are, for the most part, "controllable" by local district and often school building staff. While further analysis will provide more insights, this study provides district staff some useful information on implicit actions/initiatives which might be used to improve reading programs.

The implications for funding allocation, to compensatory reading programs are difficult to assess without further analysis. Large amounts of resources are allocated to compensatory reading programs in Michigan. It was found that successful programs spent more money than not-so-successful programs. However, other factors also influence program effectiveness.

Briefly, the study has identified:

1. A set of controllable factors that are related to student reading achievement. These factors pertain to both school administrators and teachers.

2. That other things being equal and up to a point, more dollars per student means more achievement per student.

It is recommended that the State Board of Education receive report on the 1973-74 Michigan Cost-Effectiveness Study: Executive Summary.

MICHIGAN COST-EFFECTIVENESS STUDY: AN EXECUTIVE SUMMARY

December, 1974

Michigan Department of Education

Research, Evaluation, and
Assessment Services

INTRODUCTION

The purpose of this summary is to provide a description of the 1973-74 Michigan Cost-Effectiveness Study and its findings. The study was an effort to develop and implement evaluation techniques which can determine what educational practices bring about changes in student behavior and what costs are associated with those practices. The 1973-74 study was restricted to compensatory education reading programs.

The term program effectiveness, as used in this study, includes a consideration of both program success and activities associated with the program. Program success is attained when the objectives of a program are attained, i.e., an increase in student reading achievement. Program effectiveness required further investigation of the question, "Why was the program successful?" To be termed effective, the activities of the program must contribute to the success of the program so that there is a strong indication that the activities brought about the achievement of the objectives.

Successful programs must be examined to determine their effectiveness. However, a problem arises when only successful programs are examined. For example, if a group of successful individualized instruction programs showed that all successful programs collect student attendance data, it might be reasonable to assume that collection of student attendance information was one reason for the success of the programs. However, an examination of unsuccessful individualized instruction programs would most likely show that they too collect student attendance data. It would be erroneous to attribute program success to the collection of attendance data. Thus, it is necessary to examine both successful and unsuccessful individualized instruction programs in order to determine what activities are present in successful programs, but not in unsuccessful programs.

SITE SELECTION

As a first step toward identifying effective educational practices, thirty-three unusually successful and thirty-three unusually unsuccessful compensatory education delivery systems were randomly selected. These delivery systems were first identified as programs at the school district level and then as programs at schools within the school district.

Through written correspondence and telephone contact, screening criteria were applied to the sixty-six final program sites. These were:

1. The compensatory education project (Title I or Chapter 3) was in existence by the fall of 1972.

2. The project had the same key project person (e.g., reading coordinator) in 1973-74 as in 1972-73; or the same key person provided the same services to the project as was provided the previous year, even though this person might hold a different title or be in a different location.

3. The school building had the same principal in 1973-74 as in 1972-73.

4. Teacher and student turnover in the building was less than 40%.

5. There were at least five students per participating grade level.

6. The program materials used were essentially the same in each of the two years.

Forty-eight final sites, consisting of twenty-five high achieving schools and twenty-three low achieving schools were identified. Table 1 presents a breakdown of the final data sites.

TABLE 1

FINAL SITE SELECTION FOR
MICHIGAN COST-EFFECTIVENESS STUDY

	TITLE I	CHAPTER 3	TOTAL
High Achieving Districts	18	7	25
Low Achieving Districts	17	6	23
TOTAL	35	13	48

Achievement data from the 1973-74 test results for the Title I and Chapter 3 Compensatory Education Programs in these schools were collected and compared to the results from 1972-73. The month/month gain scores were computed for the schools visited during the 1973-74 school year. Table 2 illustrates the degree of shifting from the 1972-73 ranking within a group. For instance, the highest ranking Title I site for 1973-74 was previously ranked fifteenth for the 1972-73 school year. However, a high degree of stability was exhibited in so far as a site retaining its original classification of being a high or low achieving district. Only six sites actually changed from one group to another.

TABLE 2

1973-74 READING RESULTS FOR TITLE I AND CHAPTER 3
SITES BY HIGH AND LOW GROUPS

HIGH			LOW		
Rank	Position	Month/Month	Rank	Position	Month/Month
1972-73	1973-74	Gain	1972-73	1973-74	Gain
		Title I			
1	2	2.38	19	30	.88
2	7	1.88	20	27	.97
3	14.5	1.34	21	21	1.11
4	8	1.85	22	18	1.31
5	13	1.41	23	24.5	1.04
6	4	2.02	24	32	.83
7	11	1.50	25	31	.86
8	14.5	1.34	26	33	.76
9	12	1.43	27	26	1.01
10	6	1.94	28	23	1.08
11	17	1.33	29	22	1.10
12	19	1.22	30	28	.96
13	5	1.95	31	20	1.13
14	24.5	1.04	32	29	.93
15	1	3.62	33	34	.54
16	16	1.33	34	9	1.66
17	10	1.51	35	35	.50
18	3	2.10			
		Chapter 3			
1	6	1.23	8	13	.79
2	3	1.56	9	10	.82
3	5	1.40	10	7	1.08
4	2	1.66	11	8	1.03
5	4	1.50	12	9	.86
6	11	.81	13	12	.80
7	1	2.19			

DATA COLLECTION

The first step in the data collection process was to develop instruments. A preliminary data gathering instrument had been developed and field tested during May and June of the 1972-73 school year in fifteen projects in eight Michigan school districts. This instrument was reviewed by Education Turnkey Systems, Inc. (TURNKEY)

staff and consultants. Nine major groups of data items and four respondent levels were identified. The data item groupings included:

1. Staff Variables
2. Organization and Management of Overall Program
3. Organization and Management of Classroom Reading Activities
4. Method of Instruction
5. Staff Development
6. Student Characteristics
7. School/District Characteristics
8. Utilization of Staff Time
9. Participants (Students, Staff, Parents, and Others)

Specific items under each category were developed by TURNKEY staff based on review of the literature and/or adapted from previously existing instruments. Appendix A provides a source reference for the item pool used in the instrument development and revision process.

Five respondent levels were identified. These were:

1. The district director of compensatory education
2. The target school principal
3. The compensatory education reading teacher(s)
4. The regular reading teacher(s)
5. Other staff

Both regular reading teachers and special compensatory education teachers responded to the same teacher questionnaire form. Reading specialists, reading coordinators, and paraprofessional reading aides responded to the questionnaire form entitled "Other". This "Other" form was also designed to obtain information from additional staff that had direct involvement with the compensatory education reading resource teacher paid by Title I or Chapter 3 funds. Items for the final draft of the instrument were included on the basis of the degree to which they reflected factors of cost and program parameters that can be controlled via policy decisions.

The data collection team consisted of one data manager and nine data collectors. The persons on the data team had had prior teaching experience or were graduate level students in education.

In February 1974, prior to the initiation of the data collection process, TURNKEY staff conducted a two-day intensive orientation and training session for the data collectors. In addition, MDE officials attended the session.

Data collectors were provided only that information and training which they would need to fulfill their specific responsibilities. For example, while the general design of the evaluation effort was described, certain factors which could have affected the nature of the data collection were carefully avoided in the training (e.g., that sites were selected on the basis of high or low achievement).

The typical data collector visited an average of seven sites with the typical site consisting of one director, one principal, one compensatory education teacher, three regular teachers, and two paraprofessionals. Individual interviews lasted approximately fifty-five minutes over an 8.5 hour interviewing day. Data collectors reported that respondents were "cordial, helpful, and cooperative . . . with every effort being made to provide the requested information".

DATA ANALYSIS

The effectiveness analysis began with the nine major groups of data items which, it was hypothesized, would act together in their impact on reading program effectiveness. Initial phases of the effectiveness analysis dealt with identifying those groups of items which could discriminate between the high and low schools. Of the 719 items (not including cost items), approximately 435 items were included in the analysis. The remaining items were excluded for various reasons such as incomplete data, all schools responding in a like manner, no schools responding, etc.

Of the 9 groups of items, only the building principals responses to the group concerning student, parent and staff involvement in the project discriminated between high and low schools. However, 45 of the individual items discriminated between high and low schools. Since high and low schools were selected from the basis of 1972-73 reading achievement results, the 45 variables were cross validated to the 1973-74 reading achievement results. The Table 3 presents results of this cross validation which showed that 17 of the 45 variables maintained their relationship to achievement over two years.

The type of relationships between variables in Table 3 and reading achievement is shown in the right column of the table. For example, those schools where the principal was satisfied with compensatory education curriculum decision methods had significantly higher reading achievement than did those schools where the principal was not satisfied with compensatory education curriculum decision methods. Similarly, where the fraction of materials selected by the compensatory education teacher was high, reading achievement was high and vice versa.

The relationships presented in Table 3 represent the major product of the 1973-74 study. They are the current best indicators of what is related to student reading achievement. For example, Table 3 shows that when a compensatory education director spent more than an average amount of time planning compensatory reading programs, the student reading achievement was greater than when a director spent less than the average amount of time planning. In a strict sense, it is not known, however, whether more planning brought about higher achievement or higher achievement brought about more planning. Common sense suggests the former.

TABLE 3

VARIABLES RELATED TO READING ACHIEVEMENT

Variable	Type of Relationship
District Coordinator (respondent)	
Percent time planning comp. ed. reading	Direct, positive
Principal (respondent)	
Is principal satisfied with comp. ed. curriculum decision methods?	Yes: Direct, positive
Number of teacher working hours at school daily.	Direct, positive
Comp. Ed. Teacher (respondent)	
Fraction of materials selected by teacher.	Direct, positive
Were periodicals basic reading materials?	Yes: Direct, positive
Days of training provided teachers at onset of project.	Direct, positive
Degree to which comp. ed. students liked school in 1972-73.	Direct, positive
Does teacher know percent of comp. ed. students absent from classroom on any given day?	Yes: Direct, postive
Did paraprofessionals help teacher?	No: Direct, negative
Teacher morale	Direct, positive
Regular Classroom Teacher (respondent)	
Number of classroom observations by reading specialist over last 12 months	Direct, positive
Was non-professional tutorial part of the 1972-73 combination project (only teachers from combination type projects responded)?	No: Direct, negative
Percent of time professional tutorial was part of combination projects in 1972-73.	Indirect, negative

TABLE 3 (con't.)

VARIABLES RELATED TO READING ACHIEVEMENT

Variable	Type of Relationship
Regular Classroom Teacher (respondent) (con't.)	
Percent professional tutorial was part of combination projects in 1973-74	Indirect, negative
Were commercial reading texts supplementary?	Yes: Direct, positive
Difficulty of reading materials	Indirect, negative
Percent of time spent (by teacher) on miscellaneous (other than instruction, reading, or administrative activities.	Indirect, negative

Likewise, it is not known whether higher teacher morale results in higher student reading achievement or higher student reading achievement results in high teacher morale. What is currently known is that the morale of compensatory education reading teachers is directly related to student reading achievement. The question of which of the variables in Table 3, and other variables not examined during 1973-74, effect student reading achievement is being further addressed by the 1974-75 phase of the Cost-Effectiveness Study.

COST ANALYSIS

The COST-ED Model, applied by TURNKEY in the analysis of education programs throughout the United States was adapted for use in the analyses of the costs of the forty-eight compensatory education projects included in this study. Each program was modeled as being made up of one activity in which the student was involved (classroom reading activities) plus four supportive activities not involving the students' time directly (planning, training, decision making, and administration).

The average per pupil cost of the project for each of forty-eight sites was determined. Only costs attributed to compensatory reading instruction were included, e.g., the portion of the district director's, principal's, compensatory education teacher's, regular classroom teachers', and other staff's time for this instruction was calculated and applied to the total cost for compensatory reading instruction. These data are shown in Table 4 and 5. The figures in Table 4 and 5 represent the average cost of reading instruction, by various categories, for compensatory education students. The costs are comprised of the sum of the cost borne by the compensatory education program, the

cost borne by other fund sources, and the estimated dollar value of contributed resources. An example of the latter would be the estimated dollar value of unremunerated services provided by teachers.

The Tables show that the high achieving sites averaged $742.00 per student while the low achieving sites averaged $587.19 per student. Only in the area of administrative functions did the low achieving sites spend more money than the high achieving sites. For both high and low achieving sites, more money was spent for reading instruction than for any other function.

TABLE 4

DOLLARS PER STUDENT FOR
TWENTY-FIVE HIGH SITES

HIGH SITES -- 25 AVERAGES RESOURCES	FUNCTIONS COMP-ED READING	COMP-ED PLANNING	COMP-ED TRAINING	COMP-ED DECISION MAKING	COMP-ED ADMINI-STRATION	RESOURCE TOTAL
PERSONNEL						
District Comp-Ed Director	$ --	$ 17.84	$ 4.36	$ 12.80	$ 9.40	$ 44.40
Principal	--	15.08	7.80	13.92	9.20	46.00
Comp-Ed Teacher	193.60	53.52	10.84	30.60	--	288.56
Regular Teacher	93.84	92.00	10.60	49.80	--	246.24
Paraprofessional	47.20	3.24	.80	1.00	--	52.24
Reading Specialist	1.16	2.64	.68	2.24	.84	7.56
Other Classroom Staff	.24	--	--	2.12	--	2.36
CONSUMABLES						
Comp-Ed Books and AV Software	24.40	--	--	--	--	24.40
Regular Books and AV Software	9.88	--	--	--	--	9.88
EQUIPMENT						
Comp-Ed AV Equipment	2.76	--	--	--	--	2.76
Other Comp-Ed Instructional Equipment	4.28	--	--	--	--	4.28
Regular AV Equipment	--	--	--	--	--	--
Other Instruction Equipment	3.72	--	--	--	--	3.72
Comp-Ed Administration Equipment	--	--	--	--	.16	.16
MISCELLANEOUS						
Miscellaneous Comp-Ed Training Expenses		--	6.28	--	--	6.28
Miscellaneous Comp-Ed Administrative Expenses	--	--	--	--	3.16	3.16
FUNCTION TOTAL	$381.08	$184.32	$41.36	$112.48	$22.76	$742.00

TABLE 5

DOLLARS PER STUDENT FOR
TWENTY-THREE LOW SITES

HIGH SITES -- 25 AVERAGES RESOURCES	FUNCTIONS COMP-ED READING	COMP-ED PLANNING	COMP-ED TRAINING	COMP-ED DECISION MAKING	COMP-ED ADMINI-STRATION	RESOURCE TOTAL
PERSONNEL						
District Comp-Ed Director	$ --	$ 16.83	$ 4.22	$17.48	$13.52	$ 52.05
Principal	--	12.09	7.70	19.00	13.57	52.36
Comp-Ed Teacher	135.96	17.78	2.83	11.78	--	168.35
Regular Teacher	85.57	65.48	5.04	34.74	--	190.83
Paraprofessional	70.26	.78	.30	1.22	--	72.56
Reading Specialist	6.04	3.13	1.57	2.00	--	12.74
Other Classroom Staff	--	2.83	--	.78	--	3.61
CONSUMABLES						
Comp-Ed Books and AV Software	13.04	--	--	--	--	13.04
Regular Books and AV Software	9.87	--	--	--	--	9.87
EQUIPMENT						
Comp-Ed AV Equipment	1.17	--	--	--	--	1.17
Other Comp-Ed Instructional Equipment	.22	--	--	--	--	.22
Regular AV Equipment	--	--	--	--	--	--
Other Instructional Equipment	3.00	--	--	--	--	3.00
Comp-Ed Administration Equipment	--	--	--	--	.39	.39
MISCELLANEOUS						
Miscellaneous Comp-Ed Training Expenses	--	--	4.09	--	--	4.09
Miscellaneous Comp-Ed Administrative Expenses	--	--	--	--	2.91	2.91
FUNCTION TOTAL	$325.13	$118.92	$25.75	$87.00	$30.39	$587.19

CONCLUSIONS

Without identifying specific causal relationships, the study indicates that there are certain program characteristics which are systematically related to student reading achievement. These characteristics which appear to describe the differences between effective and non-effective compensatory reading programs are for the most part "controllable" by local districts and, often, school building staff. While further analysis will provide more insights, this study provides district staff some useful information on implicit actions/initiatives which might be used to improve reading programs.

The implications for funding allocation to compensatory reading programs are difficult to assess without further analysis. Large amounts of resources are allocated to compensatory reading programs in Michigan. It was found that successful programs spend more money than not-so-successful programs. However, other factors also influence program effectiveness.

Briefly, the study has identified:

1. A set of controllable factors that are related to student reading achievement. These factors pertain to both school administrators and teachers, and

2. That other things being equal and up to a point, more dollars per student means more achievement per student.

To achieve full benefit of the 1973-74 study, it should be continued in 1974-75. The continuation should:

1. Identify new variables which relate to achievement,

2. Extend relationships between cost and achievement, and

3. Investigate the direction of relationship between achievement and the various identified variables.

APPENDIX A

SOURCE REFERENCES FOR THE DATA COLLECTION INSTRUMENT ITEM POOL

SOURCE REFERENCES FOR THE DATA COLLECTION INSTRUMENT ITEM POOL

Brookover, Wilbur B., et al., Elementary School, Social Environment and School Achievement, USOE Project No. 1.-E-707, College of Urban Development, Michigan State University.

Cort, H. Russell, In-Depth Survey of Teachers, instrument used in study of comp-ed programs in Washington, D. C.

Cort, H. Russell, list of indices used in study of Pennsylvania programs.

Dayton, C. M., Questionnaire for Elementary Classroom Teachers, developed in conjunction with a teacher's group in Arlington, Virginia.

Herriott, Robert E., Social Class and the Urban School, New York: John Wiley and Sons, Inc. 1966, p. 277.

Kiesling, Herbert J., Input and Output in California Compensatory Education Projects, Santa Monica, California, Rand (R-781-CC/RC), October 1971.

Kiesling, Herbert J., list of variables for unpublished research.

McDonald, Frederick J., and Forehand, Garlie A., A Design for an Accountability System for the New York City School System, Princeton, New Jersey, Educational Testing Service (PR-72-10), May 1971.

Orr, David B., Information Needs Relating to Reading Achievement Improvement, Washington, D. C., Scientific Educational Systems, Inc., submitted to NCES, USOE (Contract No. OEC-0-70-4788), May 1971.

Smith, B., Othanel ed., Research in Teacher Education: A Symposium, AERA, Prentice-Hall, c 1971.